

A METHOD OF HOT MARKING, AND A MULTILAYER STRUCTURE FOR
IMPLEMENTING SUCH A METHOD

The present invention relates to applying decoration
on an article of plastics or other material, and to a
5 method of hot marking.

BACKGROUND OF THE INVENTION

Such a method consists in bringing the article into
contact with a multilayer structure having one or more
transferrable layers carried by a backing layer, and in
10 applying pressure and heat locally to the structure by
means of a gilding iron.

European patent application EP-A-0 668 670 refers to
that method in its introduction.

In a later step, the layers transferred onto the
15 article are usually covered in varnish in order to
protect the decoration from abrasion.

It is difficult to deposit the varnish exactly on
the decoration without spreading any varnish over the
article, such that as a general rule the varnish is also
20 present around the decoration, and that can be a drawback
from the point of view of appearance.

OBJECTS AND SUMMARY OF THE INVENTION

There exists a need to simplify the making of
decoration by a hot marking method and to improve the
25 appearance thereof.

The invention thus provides a novel method of hot
marking enabling decoration to be made on an article, and
comprising the steps consisting in:

- supplying a multilayer structure comprising a
30 layer of varnish that hardens under the effect of
radiation, a backing layer, and a layer of decoration,
the varnish layer being situated between the backing
layer and the decoration layer;
- bringing said multilayer structure into contact
35 with the article;
- applying pressure and heat to the backing layer at
the location where it is desired to transfer the

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5 · withdrawing the backing layer; and
 · causing the layer of varnish that has been transferred onto the article to harden by exposing it to said radiation.

It is simpler to make the decoration, and its appearance is improved since the varnish which protects the decoration does not extend over the article but only over the layer of decoration deposited on the article.

The varnish can include oligomers of low molecular weight, preferably lying in the range 800 to 2000, and can contain a solvent prior to being applied on the backing layer.

Preferably, the varnish includes photo-initiators at
25 a concentration by weight lying in the range 0.3% to 3%,
and preferably about 0.5%.

The layer of varnish is preferably exposed to said radiation while its temperature is still close to the maximum temperature it reaches when pressure and heat are applied to the backing layer, the temperature difference preferably being less than 30% of the maximum temperature.

35 The decoration layer can be a layer of metal vacuum-deposited on the varnish layer before the varnish layer

In a variant, the decoration layer can be a layer of ink deposited by printing on the varnish layer before the varnish layer has been exposed to said radiation.

Advantageously, the decoration layer is covered in a layer of hot-melt adhesive.

The decoration layer can be a layer of vacuum-deposited metal or a layer of ink deposited by printing.

20 The invention will be better understood on reading
the following detailed description of a non-limiting
implementation, and on examining the accompanying
drawing, in which:

• Figure 2 is a diagram showing the various steps in fabricating the multilayer structure of Figure 1; and

30 MORE DETAILED DESCRIPTION

A layer of varnish 14 has one face in contact with
35 the separation layer 13 and on its other face 17 it
carries a layer of decoration 15.

The various layers 11 to 16 are shown in the figures without complying with their real proportions, in order to clarify the drawing.

The backing layer 11 can be constituted by a polyester film, for example.

The separation layer 13 adheres to the backing layer 11 more strongly than to the varnish layer 14.

In general, the varnish used can have one or two components with or without a solvent, including oligomers of low molecular weight, preferably lying in the range 800 to 2000, and it can contain one or more pigments or dyes and photo-initiators, where the photo-initiators are preferably at a concentration by weight lying in the range 0.3% to 3%, and preferably about 0.5%.

The adhesive layer 16 is constituted by a hot-melt adhesive.

In a variant embodiment that is not shown, the multilayer structure also includes, between the varnish layer 14 and the decoration layer 15, a layer of varnish 35 that is colored, e.g. yellow.

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It is brought into contact with the outside surface of an article A to be decorated, and a gilding iron F having portions in relief R corresponding to the pattern to be made is used to apply pressure and heat to the outside face of the backing layer 11, as shown in Figure 3.

5 When the multilayer structure 10 is withdrawn, as shown in Figure 4, the decoration layer 15 remains on the article A at locations where pressure and heat were applied locally.

The separation layer 13 remains attached to the backing layer 11 when it is withdrawn.

Exposure to the UV radiation causes the varnish to become cross-linked and hardens it.

It will be observed that the power required from the source L can be relatively low when the decoration layer 15 is a layer of metal since the radiation reflected by said layer of metal into the layer of varnish 14 contributes to activating the photo-initiators.

The varnish layer 14 is preferably exposed to the ultraviolet radiation immediately after the backing layer 11 has been withdrawn so as to take advantage of the fact that the varnish is still relatively hot and thus more sensitive to exposure to ultraviolet radiation.

The gilding iron F is used in such a manner as to apply the heat and pressure required for obtaining the desired result, e.g. by being raised to a temperature of about 150°C.

- 5 Where appropriate, the article A can be subjected to surface treatment in order to improve adhesion of the decoration.

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